

REMARKS

Applicants respectfully request reconsideration of the present application in view of the foregoing amendments and in view of the reasons that follow.

Claim 49 is being amended to be in independent form including some of the features of claim 37, from which it depended, and also to include “the base coat layer being thickened at a corner of a cell of the carrier”, support for which can be found at least in the specification in the bridging paragraph on pages 9-10. Claim 37 has been canceled without prejudice or disclaimer. Claims 45-46 and 48 have been amended to change their dependency to be from claim 49. No new matter has been added.

Claims 1-24, 30 and 40-49 remain pending in this application, of which claims 1-24 are withdrawn from consideration.

Rejections under 35 U.S.C. § 103

Claims 30, 37, 40, 41, 43, 45, 46 and 48 were rejected under 35 U.S.C. § 103(a) as being unpatentable over EP 0782880 to Noda et al. (“Noda”) in view of U.S. Patent No. 5,593,647 to Kirby (“Kirby”). Claims 42 and 47 were rejected under 35 U.S.C. § 103(a) as obvious over Noda in view of Kirby, and further in view of U.S. Patent No. 5,057,483 to Wan (“Wan”). Claims 44 and 49 were rejected under 35 U.S.C. § 103(a) as being obvious over Noda in view of Kirby, and further in view of U.S. Patent No. 5,152,231 to Patil et al. (“Patil”). Applicants respectfully traverse these rejections for at least the following reasons.

The catalytic converter of independent claim 30 has a structure where a first catalyst layer is disposed on an HC trap layer, and a second catalyst layer is disposed on the first catalyst layer disposed on the HC trap layer. Further, the first and second catalyst layers comprise first and second washcoats, respectively, and the amount of the second washcoat present (based on a unit volume of the carrier) is smaller than an amount of the first washcoat present (based on the unit volume of the carrier). Noda and Kirby, upon which all the rejections are based, at least in part, fail to disclose or suggest this feature of claim 30 when considering claim 30 as a whole, or appreciate the advantages of such structure in increasing the HC conversion efficiency in the HC trap layer by allowing that HC released in the

underlying HC trap layer can be quickly oxidized and reduced during the engine warm-up operation.

Specifically, the structure of catalytic converter of claim 30 contemplates obtaining not only the desired exhaust purification characteristics but also an increased HC conversion efficiency of HC from an underlying HC trap layer by taking into account the influence of the amounts of the two washcoats present in the two catalyst layers on heat capacity of the respective catalyst layers. That is, the structure of catalytic converter of claim 30 contemplates increasing the HC conversion efficiency by controlling the amounts of the two washcoats present in the respective catalyst layers on a HC trap layer which significantly influences the heat capacity of the respective catalyst layers for allowing the HC released from the HC trap layer to be quickly oxidized. Neither Noda nor Kirby suggests this effect, and claim 30 is not obvious thereover.

Noda and Kirby fail to suggest the invention as claimed in claim 30, when considered as a whole. As noted in the Request for Reconsideration filed on March 8, 2007, in the Noda structure the relation between the amount of the washcoat present in the outer catalyst layer and the amount of the washcoat present in the inner catalyst layer is precisely the opposite to that as recited in claim 30. Kirby, which is relied upon in the Office Action to show the relationship between the amount of washcoat in two catalyst layers, merely discloses in column 3, line 53 to column 4, line 2 that the amounts of the washcoats on the inner and outer catalyst layers are controlled in view of the purification characteristics for the exhaust components HC, CO and NOx. Nowhere does Kirby disclose or suggest that the amounts of the washcoats on the inner and outer catalyst layers exert such significant influence on heat capacity of the respective catalyst layers to thereby allow quick oxidization of the HC released from an underlying the HC trap layer. Kirby merely discloses improving emission performance generally, not increasing HC conversion efficiency in particular. Kirby does not provide an optimized solution for reducing the HC released from the HC trap layer during engine warm-up operation. In fact, Kirby does not disclose a structure with an HC trap layer, followed by first and second catalyst layers disposed thereon.

In sum, Noda and Kirby do not suggest the invention as claimed in claim 30, as a whole where the inner and outer catalyst layers are above an HC trap layer, and the first and second catalyst layers have relative washcoat amounts so to allow quick oxidization of the HC released from an underlying the HC trap layer. Kirby merely discloses increasing emission performance generally, and is not concerned with increasing HC conversion efficiency of HC from an underlying HC trap layer, much less in the fashion of claim 30. Moreover, even if Noda discloses an underlying HC trap layer, the relation in Noda between the amount of the washcoat present in the outer catalyst layer and the amount of the washcoat present in the inner catalyst layer is precisely the opposite to that as recited in claim 30, and as such, teaches away from the present invention as claimed in claim 30. In light of the above, the invention of claim 30 as a whole would not have been obvious in view of Noda and Kirby.

Independent claim 49, as amended, recites “a base coat layer disposed between the carrier and the HC trap layer, said base coat layer comprising one of alumina and silica as a main component, the base coat layer being thickened at a corner of a cell of the carrier.” Noda fails to disclose or suggest at least this feature of claim 49. The Office Action cites to Noda at page 7, lines 22-23 as disclosing a heat resistant metal oxide as a base coat layer. Even if the coating of heat-resistant metal oxide of Noda could be considered a base coat layer, however, Noda still fails to disclose all the features of claim 49, because Noda does not disclose that its heat-resistant metal oxide is formed so as to be thickened at a corner of a cell of the Noda carrier.

Moreover, Noda fails to realize the advantages of forming a base coat layer so as to be thickened at a corner of a cell of the carrier. As disclosed in the present specification, in the bridging paragraph on pages 9-10, forming the base coat layer so as to be thickened at a corner of a cell of the carrier allows the HC trap layer to be formed with reduced thickness thereby reducing the amount of more expensive material needed for the HC trap layer, without lowering HC trapping efficiency. Noda fails to realize this advantage.

The dependent claims under consideration ultimately depend from either claim 30 or 49 and are therefore allowable for at least the reasons discussed above with respect to the independent claims.

Wan and Patil were cited for other features of the claims, but fail to cure the deficiencies of Noda and Kirby and analogous arguments apply.

Applicants believe that the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

Respectfully submitted,

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THE COMMISSIONER IS HEREBY AUTHORIZED TO CHARGE ANY ADDITIONAL FEES WHICH MAY BE REQUIRED REGARDING THIS APPLICATION UNDER 37 C.F.R. §§ 1.16-1.17, OR CREDIT ANY OVERPAYMENT, TO DEPOSIT ACCOUNT NO. 19-0741. SHOULD NO PROPER PAYMENT BE ENCLOSED HERewith, AS BY A CHECK BEING IN THE WRONG AMOUNT, UNSIGNED, POST-DATED, OTHERWISE IMPROPER OR INFORMAL OR EVEN ENTIRELY MISSING, THE COMMISSIONER IS AUTHORIZED TO CHARGE THE UNPAID AMOUNT TO DEPOSIT ACCOUNT NO. 19-0741. IF ANY EXTENSIONS OF TIME ARE NEEDED FOR TIMELY ACCEPTANCE OF PAPERS SUBMITTED HERewith, APPLICANTS HEREBY PETITION FOR SUCH EXTENSION UNDER 37 C.F.R. § 1.136 AND AUTHORIZE PAYMENT OF ANY SUCH EXTENSIONS FEES TO DEPOSIT ACCOUNT NO. 19-0741.